Environmental Health (EH) focuses on preventing communicable diseases and environmental conditions that could be harmful to individuals or public health—through education and consultation, response and investigation, and enforcement of regulations.

Diseases transmitted through food, poor food handling practices and/or improper cooking and cooling temperatures pose a significant threat to public health. Therefore, preventing foodborne illness and death remains a major public health challenge.

In addition, vector-borne zoonotic diseases can be transmitted by animals to humans. They are often spread by prairie dogs, mice, rabbits, ticks or mosquitoes, and include Hantavirus, Lyme disease, plague, rabies, tularemia and West Nile virus.

Programs and services range from food safety and restaurant inspections, to health, safety and prevention of disease in childcare centers and swimming pools, to land, air, and water quality.
Division Highlights

Continuing on work from late 2014, the Tri-County Health Department (TCHD) EH Division and the Epidemiology, Planning, and Communication (EPC) Division collaborated with local animal control agencies to address roles and responsibilities in rabies control and prevention. Discussions from two stakeholder meetings included specimen handling procedures, quarantine protocols, as well as developing trainings for animal control officers.

In the summer of 2015, staff from EH and EPC conducted two training seminars for local animal control agencies. There were 40 attendees from ten different agencies in the Adams, Arapahoe and Douglas County areas.

TCHD received an overwhelmingly positive response from those agencies regarding the training, guidance and resources that were provided.

Environmental Health initiated a Lean process to improve the Retail Food program by focusing on effective follow-up inspections and customer service through a more educational approach to compliance and a higher quality interaction with the operator.

New policies were developed to encourage educational interventions (a scheduled inspection with focused food safety trainings), correction of violations on-site, and updated risk categories. Metrics were developed to assess the success of the changes and promising results are already appearing in reviews of the data.

Awards

Warren Brown, Public Health Engineer, was awarded the Milton S. Miller Award at the 2015 Colorado Environmental Health Association (CEHA) Annual Education Conference (AEC) for his extraordinary commitment to the Environmental Health profession in the State of Colorado.

Warren has been a key player in the Onsite Wastewater industry and is a recognized leader throughout the State of Colorado.

In addition to his role in leading Tri-County Health Department’s Onsite Wastewater Program from 1990 through 2015, Warren was instrumental in his role working on the Regulation 43 committee.

Congratulations Warren!

Laura DeGolier and her counterparts on the State Data Standardization Committee were presented with the Environmental Health Innovation award at the 2015 CEHA AEC.

The Environmental Health Innovation Award is presented to a CEHA member or organization for creating a new idea, practice, or product that has had a positive impact on improving the environment, public health, and quality of life.

The State Data Standardization Committee was recognized for their efforts with standardizing retail food inspection and violation data in the various inspection databases within Colorado and developing reports that the state and locals can utilize to make timely and more effective decisions.

Congratulations, Laura!
Body Art

The Body Art Team is blazing a new trail for TCHD with the development of new body art regulations for the over 60 Body Art facilities that the team inspects annually.

Using the State regulations as a backbone, TCHD used language from other locally adopted body art regulations, as well as input from several stakeholder study sessions with industry and the public.

The draft language incorporates a new licensing requirement, as well as procedures to facilitate compliance and allow penalties for non-compliance.

The team looks forward to presenting their draft regulation to the Board of Health for their consideration for adoption in the third quarter of 2016.

Child Care

Did you know that the most common violation in child care centers is improper use or concentration of sanitizers or disinfectants?

In 2015, EH conducted an assessment of the program with the help of a Masters of Public Health Practicum student who worked with key staff on recommending changes that could be made within the program to improve its effectiveness.

Items included in the assessment were violation data, outbreak data, other health department program information, as well as the insight of staff working in the program.

Some of the recommendations include improving educational material, providing trainings to operators, incorporating the use of data analysis, re-standardizing inspectors, and having a dedicated child care program specialist.

Implementation of some of these recommendations will take place in 2016.

Additionally, several members of the child care team participated in a stakeholder process for revising the state child care regulations. The revision was completed and the new regulations will take effect January 2016.
Household Chemical Roundups

In 2015 during the five Household Chemical Roundup (HCR) events, 3,418 vehicles (an estimated 3,553 households) dropped off 594,684 pounds of waste.

The pounds of waste collected have increased significantly in the last two years while the households served has plateaued.

With the population increase in the State of Colorado during the last two years, the volume of waste at HCR events is expected to continue to increase in 2016.

Permanent household hazardous waste facilities are being explored as options to address the rise in waste streams and to improve customer convenience as a result of the population growth.

An easy to use A-Z Recycle Guide was created for staff and the public to search online for recyclers and how to properly dispose of hard to recycle items in the Tri-County area. Go to www.tchd.org and search A to Z Recycle.

Animal Control

Although the last human case of rabies in a Colorado resident was in 1931, rabies in wildlife increases the risk of spillover into domestic animals and livestock, further increasing the risk to humans.

Bats are the predominant animal which acts as a vector for rabies but other wildlife species can carry and transmit the rabies virus including skunks, raccoons, and foxes. In Colorado there was a 10% decrease with 119 positive animal cases reported in 2015: 71 bats, 45 skunks, 1 raccoon, and 2 cats.

Rabies is nearly 100% fatal for humans without post exposure prophylaxis treatment.

Opportunities were also identified to improve working relationships between TCHD and several external entities such as local animal control agencies, Colorado Parks and Wildlife (CPW), and practicing veterinarians.

The workgroup developed strategies for risk assessment and response to help prioritize rabies exposure and provided training to many local animal control agencies and veterinarians.

The TCHD Rabies Prevention and Control Manual and its supporting documents were updated and are consistent with the National Association of State Public Health Veterinarians Compendium of Animal Rabies.
TCHD will be adding a new approach to conducting food safety inspections in the coming year! Our focus has always been to provide education to retail food operators during our inspections.

However, we will be taking this one step further by incorporating a more in-depth educational approach when we identify food preparation practices that are hazardous and can ultimately lead to foodborne illness.

If violations are occurring on a regular basis in a retail food establishment, the operator will be contacted by an inspector for an announced inspection where their attendance will be required, along with that of key personnel within the restaurant.

The operator(s) and the inspector will have an opportunity to then take an in-depth look at the practice(s) of concern, so that we can work together to protect the health and safety of our customers, while also helping lead to the success of the retail food business.

The goal of this new approach is to enhance the educational component of our retail food inspection process in order to gain long-term compliance within the establishments and thereby reduce our regulatory follow-up inspection rates.

It has been observed that multiple follow-up inspections only suffice to provide short-term compliance while expending valuable resources in an already demanding regulatory program.

With this methodology, our intent is to improve our services to our operators and build collaborative working relationships, at the same time protecting public health. In order to ensure that our efforts are spent appropriately in the most pertinent retail food establishments, policy changes were incorporated to focus on those restaurants with the highest risk to food safety, and those with the most challenging food preparation activities.

Inspection frequency categories and risk definitions were adjusted to reflect these determinations, and are now being considered for implementation statewide.

“The goal of this new approach is to enhance the educational component of our retail food inspection process in order to gain long-term compliance...”
Did you know that the mosquito is the most deadly creature in the world? According to the World Health Organization, mosquito bites result in the deaths of more than 1 million people every year. The majority of these deaths are due to malaria. Although malaria is not an issue here in Colorado, West Nile Virus (WNV) transmitted through mosquitoes is. Last year TCHD conducted surveillance of mosquito populations, and the identification and testing of certain mosquitoes that can carry WNV. In 2015 over 19,842 mosquitoes were trapped and identified. Mosquitoes are pooled together from various trap locations and sent to the CDPHE lab. Out of the 51 mosquito pools that were submitted, 5 mosquito pools tested positive for WNV. This surveillance helps determine when mosquito abatement needs to occur to prevent the transmission of the virus to people in our communities.

In our three counties alone, 20 human cases of WNV were reported and investigated. In addition to value for controlling WNV, mosquito surveillance can also help to detect any potential introduction of new disease-carrying mosquitoes (such as those that can transmit Zika virus) in our area. Each year our offices receive numerous reports of dead animals in our communities. As human cases of Plague and Tularemia continue to increase across Colorado, the Tri-County Vector team logs all calls and uses this information to conduct investigations and perform testing of available carcasses for these diseases. In 2015, 198 reports of dead animals from concerned local citizens were received from calls and the Tri-County webpage dead animal report form. TCHD staff evaluated each report for risk of disease transmission and provided educational information about plague and tularemia. Anytime we identify that a dead animal has died from plague we will locate the borrows that the dead animals inhabited and apply an insecticide to kill the fleas that are carrying the plague bacteria to prevent further spread of the disease.
Disease Prevention

Did you know 1 in 6 people get food poisoning every year? In the Tri-County area, that equates to about 239,000 food poisonings each year. However, only a very small portion of the public reports a food borne illness to the health department.

In 2015, EH staff investigated 164 foodborne illness complaints and 3 retail food establishment outbreaks. Of the 31 known pathogens that cause foodborne illness, Norovirus contributes to 58% of the illnesses.

The Centers for Disease Control and Prevention (CDC) has identified reducing foodborne diseases as a winnable battle.

Simple prevention methods in the home and in restaurants such as washing hands and surfaces often, cooking foods to the right temperatures, refrigerating leftovers promptly and preventing cross-contamination can minimize illnesses.

How contagious is norovirus?

Just a very small amount — as small as 18 viral particles — of norovirus on your food or on your hands can make you sick.

That means the amount of virus particles that fit on the head of a pin would be enough to infect more than 1,000 people!

(Source Journal of Medical Virology, August 2008)

Swimming Pools and Aquatic Venues

Pool myth: “There is such a strong smell of chlorine at the pool, because they use too much chlorine.” Pool fact: The strong smell of chlorine at pools is caused by chloramines. Chloramines form when available chlorine (the disinfectant) in the pool combine with contaminates, like sweat, urine, body lotions, etc.

Visiting a pool with a strong chlorine smell means that the disinfectant is tied up as chloramines, and there is a lack of disinfectant available in the pool.

In 2015, Tri-County Health Department had 265 public/semi-public pool facilities with a total of 511 bodies of water and conducted 523 routine inspections.
TCHD’s Strategic Plan has identified water quality, water supply, water reuse and water conservation activities as a strategy in order to achieve the overall goal of improving and expanding efforts to promote healthy human environments.

One key activity in 2015 to accomplish the Strategic Plan’s water program goals involved finalizing a Graywater White Paper.

“Graywater” is wastewater that can be put to a beneficial use. Sources of graywater include bathroom and laundry room sinks, bathtubs, showers and washing machines. It does not include wastewater from toilets, urinals, kitchen sinks, dishwashers or non-laundry utility sinks.

The White Paper provides an overview of pertinent new laws and regulations and describes our role in assisting local governments in adopting and implementing graywater control programs.

The national coverage of the events in Flint, Michigan elevated the public health concern of lead in drinking water supplies. TCHD responded to concerns from the public by answering questions and directing clients to their water provider’s Consumer Confidence Reports (CCRs). These CCRs include laboratory results for a variety of contaminants, including lead, taken from a representative number of customer taps.

TCHD receives several questions from the public regarding oil and gas activity and its potential effects on water quality.

TCHD answers questions from the public on how to test private well water supplies, assists homeowners in interpreting well testing results, and coordinates with other agencies to have private wells located near oil and gas operations sampled when requested by property owners.
Industrial Hygiene

Did you know that galvanized metal chain link fences often contain lead? Galvanization is a process that applies a zinc coating to metal. Zinc is often contaminated with lead.

Galvanized fencing may or may not contain lead; however, the cheaper the fence, the more likely it is to contain lead.

When a child handles brass keys or puts them in her mouth, she can be exposed to dangerous amounts of lead. For this reason, children should never be allowed to play with metal keys.

Adults, especially pregnant women, should also be aware of the danger of lead in brass keys. Handling keys can leave adults with elevated levels of lead on their hands. It’s important to wash your hands after handling keys and before preparing food, eating, applying makeup or handling a baby.

It’s also advised to avoid keeping food, gum or candy in your pocket or purse with your keys. In addition, you can place plastic or rubber covers over the heads of the keys to reduce your contact with the lead.

In 2015, we investigated 15 homes of children who had elevated blood lead levels. Of those, seven had a galvanized chain link fence that contained lead and nine had a brass object in the home that contained lead.

These items were implicated in the child’s elevated blood lead levels. Lead poisoning can be caused when a child touches an object, such as a fence, that contains lead, and then puts their hands in their mouth, or eats without washing their hands first.
Health in All Policies (HiAP) is a collaborative approach to improving the health of all people by incorporating health considerations into decision-making across sectors and policy arenas.

The Land Use and Built Environment program works with local government agencies, community organizations and special districts to encourage health-promoting considerations in policies and projects that shape the built environment.

To explore how TCHD as an agency can better work with local governments utilizing HiAP, an inter-departmental workgroup was formed in October 2015. This workgroup has collected data, surveyed Tri-County staff, and conducted preliminary GIS analysis to assess what opportunities lay ahead for meaningful policy development work with local governments.

Some examples of this upstream work to promote health include:
- The development of an Invest Health grant with the City of Westminster and Adams County governments along with other partners.
- Working with the City of Northglenn to design a scope of work for a Health Impact Assessment alongside their Zoning Code rewrite process and assessing convenience stores as opportunities for healthy food outlets.
- Working with the City of Sheridan on implementation of their healthy Comprehensive Plan.
- Working with our Worksite Wellness Coordinator to build connections for employee wellness opportunities at the Cities of Thornton, Northglenn and Sheridan.
- Working collaboratively with other local public health agencies to track the Metro Vision planning process of the Denver Regional Council of Governments and advocate for the continued inclusion of health-promoting policies in Metro Vision 2040.

Additionally, one of the foundational functions of the Land Use Program is to respond to referral requests for land development applications in our three counties and many of the cities within TCHD’s service area.

Over the last several years, we have seen a steady 10 to 15% increase in the number of land development case referral and a total increase in number of cases of 54% over the last four years. In 2015 we conducted 375 land development case reviews.
Environmental Health at a Glance

In support of the TCHD Strategic Plan, the Environmental Health Division was active in the participation of Goal 8: Improve and Expand Efforts to Promote Healthy Human Environments and worked closely with other Goal areas to improve population health.

Specific examples include:
- Actively engaging with the community related to regional air quality and impact of industry on air quality.
- Completing a food safety program self-assessment and working towards meeting all Food and Drug Administration (FDA) voluntary standards
- Applying Lean process improvement principles to our Retail Food program to enhance our impact and improve efficiency
- Working across divisions to develop strategies to better assist local governments in implementing a HiAP approach and identifying opportunities for cross jurisdictional collaborations.

<table>
<thead>
<tr>
<th>Environmental Health Program</th>
<th>Inspection Type</th>
<th>Adams</th>
<th>Arapahoe</th>
<th>Douglas</th>
<th>Total</th>
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<tbody>
<tr>
<td>Food Protection</td>
<td>Total Retail Food Inspections</td>
<td>3036</td>
<td>5611</td>
<td>1865</td>
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<td>Food Protection</td>
<td>Total Retail Food Opening Inspections</td>
<td>58</td>
<td>114</td>
<td>52</td>
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<td>Food Protection</td>
<td>Total Retail Food - Mobile Inspections</td>
<td>94</td>
<td>85</td>
<td>47</td>
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<td>Retail Food Facilities in the Enforcement Process</td>
<td>8</td>
<td>15</td>
<td>6</td>
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<tr>
<td>Food Protection</td>
<td>Retail Food Facilities Dismissed from the Enforcement Process</td>
<td>6</td>
<td>7</td>
<td>2</td>
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<tr>
<td>Food Protection</td>
<td># Food Safety training classes (Paid Service)</td>
<td>14</td>
<td>19</td>
<td>11</td>
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<td>Food Protection</td>
<td>Total Number of Retail Food Establishment Employees Receiving Formal Training from the TCHD Food Safety Training Class</td>
<td>97</td>
<td>223</td>
<td>139</td>
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<tr>
<td>Child Care</td>
<td>Total Number of Child Care Inspections</td>
<td>223</td>
<td>416</td>
<td>167</td>
<td>806</td>
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<tr>
<td>Pools and Aquatic Venues</td>
<td>Total Pool and Aquatic Venue Inspections</td>
<td>214</td>
<td>315</td>
<td>129</td>
<td>658</td>
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<tr>
<td>Body Art</td>
<td>Total Body Art Inspections</td>
<td>51</td>
<td>56</td>
<td>13</td>
<td>120</td>
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<tr>
<td>Disease</td>
<td>Total Foodborne Illness Public Complaints</td>
<td>34</td>
<td>86</td>
<td>44</td>
<td>164</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental Health Program</th>
<th>Item</th>
<th>Adams</th>
<th>Arapahoe</th>
<th>Douglas</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste</td>
<td># of landfill construction inspections</td>
<td>25</td>
<td>0</td>
<td>7</td>
<td>32</td>
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<tr>
<td>Solid Waste</td>
<td># of new reports of Meth labs</td>
<td>13</td>
<td>3</td>
<td>1</td>
<td>17</td>
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<tr>
<td>Solid Waste [HCR]</td>
<td>Paint products - latex paint [Lbs.]</td>
<td>20,250</td>
<td>NA</td>
<td>60,300</td>
<td>80,550</td>
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<td>Solid Waste [HCR]</td>
<td>Tires [each]</td>
<td>292</td>
<td>NA</td>
<td>481</td>
<td>773</td>
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<td>Vector</td>
<td># of specimens (+) positive for plague</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Vector</td>
<td># of animals (+) for tularemia</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Vector</td>
<td># of human (+) positive for WNV</td>
<td>7</td>
<td>11</td>
<td>2</td>
<td>20</td>
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<tr>
<td>Waste Water</td>
<td>Total # of OWTS inspections all types [Site, Final, Use]</td>
<td>297</td>
<td>133</td>
<td>354</td>
<td>784</td>
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<tr>
<td>Animal Control</td>
<td># of animals (+) for rabies</td>
<td>7</td>
<td>13</td>
<td>0</td>
<td>20</td>
</tr>
</tbody>
</table>
Environmental Health at a Glance

2015: Total EH Complaints by Category*

- Animal Bites: 28%
- Industrial Hygiene: 14%
- Villageware: 3%
- Public Accommodations: 2%
- Retail Food: 28%
- General/Other: 6%
- Vector: 10%
- Body Art: 0%
- Child Care: 1%
- Methamphetamine Lab: 0%
- Wastewater: 3%
- Water Supplies: 0%
- Air Quality: 1%
- Animal Wildlife (non-bite): 1%
- Solid/Hazardous Waste/Trash/Animal Feces: 3%
- Solid/Hazardous Waste Haz Waste Spills: 1%
- Recreation/Pools/Spas: 1%

*Animal Bites include animal vs. animal and animal vs. human. Industrial Hygiene includes asbestos, chemical exposure, indoor air, lead, mold, noise and radon. Vector includes bed bugs, cockroaches, lice/scabies, mosquitoes, rodent and prairie dog colony. Wastewater includes biosolids, OWTS, septage, sewage spills and stormwater. Retail Food does not include suspect foodborne illness complaints.

FY15 Env Health Division Revenue
Total: $6,160,040

- General Funds: $3,652,784 (59.3%)
- Fees: $2,007,174 (32.6%)
- Grants: $250,171 (4.1%)
- Federal Funds: $210,975 (3.4%)
- Federal Pass Through Funds: $31,208 (0.5%)
- State Funds: $7,728 (0.1%)

FY15 Env Health Division Expenses
Total: $6,160,040

- Salary & Benefits: $4,353,879 (70.7%)
- Operating Expenses: $376,076 (6.1%)
- Contract Services: $321,500 (5.2%)
- Capital Equipment: $2,079 (0.0%)
- Indirect: $1,560,506 (18.0%)